

U.S. Patent Application Serial No. 09/582,874
Response dated April 21, 2005
Reply to OA of February 2, 2005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended) A notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to the vibrator at the time of a notifying operation, wherein ~~the drive signal has~~ a frequency of the drive signal varies in a range including a resonance frequency of the vibrator in the form of sawtooth waves, the sawtooth waves comprising a portion inclined with respect to a time base and a portion perpendicular to the time base.

Claim 2 (original): A notifying device according to claim 1 wherein the variation of the frequency of the drive signal corresponds to a variation in the resonance frequency of the vibrator due to tolerances of specifications on which the resonance frequency is dependent.

Claim 3 (previously presented): A notifying device according to claim 1 wherein the resonance frequency of the vibrator is a low frequency of up to hundreds of hertz, and the vibration of the vibrator has at the resonance frequency an amplitude generally perceivable by the human body.

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Claim 4 (previously presented): A notifying device according to claim 1 wherein the drive signal has an alternating waveform of rectangular waves or sine waves having a frequency periodically varying at 0.5 to 10 Hz.

Claim 5 (original): A notifying device according to claim 4 wherein the frequency of the drive signal periodically varies at 1.37 to 2.98 Hz.

Claim 6 (original): A notifying device according to claim 5 wherein the frequency of the drive signal periodically varies at 2.18 Hz.

Claims 7-8 (canceled).

Claim 9 (previously presented): A notifying device according to claim 1 wherein the vibrator comprises a casing, a diaphragm having a fixed end on an inner peripheral wall of the casing, a magnet attached to a free end of the diaphragm, and a coil disposed as opposed to the magnet, and the drive signal is fed to the coil.

Claim 10 (previously presented): A wireless communication system comprising a notifying device for notifying the user of incoming calls, the notifying device comprising a vibrator to be

resonated by a drive signal fed thereto, and a signal preparing circuit for feeding the drive signal to the vibrator at the time of a notifying operation, wherein a frequency of the drive signal varies in a range including a resonance frequency of the vibrator in the form of sawtooth waves, the sawtooth waves comprising a portion inclined with respect to a time base and a portion perpendicular to the time base.

Claim 11 (previously presented): A wireless communication system having incorporated therein a notifying device for performing different kinds of notifying operations including notification of incoming calls, the notifying device comprising a vibrator to be resonated by a drive signal fed thereto, and a drive signal feed circuit for feeding the drive signal to the vibrator, wherein the drive signal feed circuit comprises:

command signal preparing means for preparing notification command signals which are different for different contents of notification in conformity with the content, and

drive signal preparing means operative in response to the notification command signal to prepare a drive signal which has a frequency which varies in a range including a resonance frequency of the vibrator in the form of sawtooth waves, the sawtooth waves comprising a portion inclined with respect to a time base and a portion perpendicular to the time base.

Claim 12 (original): A wireless communications system according to claim 11 wherein the drive signal prepared by the drive signal preparing means varies in frequency continuously in conformity with the notification command signal or intermittently at a specified period in conformity with the notification command signal.

Claim 13 (original): A wireless communications system according to claim 11 wherein the drive signal prepared by the drive signal preparing means varies in frequency at a specified period in conformity with the notification command signal.

Claim 14 (previously presented): A wireless communications system according to claim 11 wherein the variation of frequency of the drive signal prepared by the drive signal preparing means corresponds to a variation in the resonance frequency of the vibrator due to tolerances for specifications which govern the resonance frequency.

Claim 15 (previously presented): A wireless communications system according to claim 11 wherein the resonance frequency of the vibrator is a low frequency of up to hundreds of hertz, and the vibration of the vibrator at the resonance frequency has an amplitude generally perceivable by the human body.

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Claim 16 (previously presented): A wireless communications system according to claim 11 wherein the command signal preparing means prepares an incoming call notifying command signal for notifying the user of an incoming call, a caller notifying command signal for distinguishing callers, and/or a mode notifying command signal for notifying the user of an operation mode of the system.

Claim 17 (previously presented): A wireless communications system according to claim 11 wherein the vibrator of the notifying device comprises a casing, a diaphragm having a fixed end on an inner peripheral wall of the casing, a magnet attached to a free end of the diaphragm, and a coil disposed as opposed to the magnet, and the drive signal is fed to the coil.